

REMARKS

Applicants' representative thanks the Examiner for the courtesies extended during the telephonic conference on March 2, 2007, with Francis Dunn. During the conference, there was discussion regarding overcoming the rejection of the subject claims under 35 U.S.C. § 101, including discussion regarding a proposed amendment to the independent claims to indicate that the respective systems are machine implemented. The Examiner indicated that such amendment may overcome the Section 101 rejection. There was further discussion regarding the rejection of the subject claims under 35 U.S.C. § 103, and in particular discussion with regard to a proposed amendment to claim 1 to further emphasize distinctive aspects of the claimed subject matter including that the claimed subject matter can generate a file with data stored therein, where the file can facilitate reconstruction of a relational database when disconnected from the relational database.

Claims 1-46 are currently pending in the subject application, and claims 1-33 are presently under consideration. Claims 1, 7, 18, 19, 24, 31, and 33 have been amended as shown on pages 2-8 of the Reply. No new matter has been added and the amendments made herein will not require a new search.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-33 Under 35 U.S.C. § 101

Claims 1-33 stand rejected under 35 U.S.C. § 101 on the grounds that the claimed invention is directed to non-statutory subject matter. It is requested that this rejection be withdrawn for at least the following reason. The subject claims produce a useful, concrete, and tangible result and are therefore within the bounds of statutory subject matter, in accordance with 35 U.S.C. § 101.

Title 35, section 101, explains that an invention includes "any new and useful process, machine, manufacture or composition of matter."... Without question, *software code alone qualifies as an invention eligible for patenting under these categories*. *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1338-39 (Fed. Cir. 2005) (holding that 35 U.S.C. § 101 did not limit inventions or components of an invention to structural or physical components (*e.g.*,

non-software components). ***Rather, every component, including software components, of every form of invention deserves the protection of § 271(f) because it is patentable subject matter under 35 U.S.C. § 101.***

It is clear that a system that comprises software components alone can be patentable under 35 U.S.C. § 101. Thus, even if the subject claims include only software components, the subject claims can qualify as patentable subject matter under 35 U.S.C. § 101. Further, independent claims 1 and 24 each have been amended to recite that each of the respective systems are ***machine implemented***. For example, independent claim 1, as amended, recites: ***A machine-implemented system*** that facilitates representation of a relational database in a different format, comprising a declarative description component that facilitates generation of data, in an implementation-neutral, declarative format based upon an eXtensible Markup Language (XML) syntax, that represents the relational database, generates a file, and stores the data in the file, the file facilitates reconstruction of the relational database when disconnected from the relational database.

The claimed subject matter is a ***machine-implemented*** (e.g., computer) system that can represent a relational database by generating data in a declarative format based upon an XML syntax that represents the relational database and storing the generated data in a file. The claimed subject matter can thereby facilitate mapping to various data models and provide flexibility in utilizing the data to allow the database to be reconstructed in a remote setting, as the file can be used when remote and disconnected from the relational database. Thus, the claimed subject matter produces a useful, concrete, and tangible result in accordance with 35 U.S.C. § 101.

In view of at least the foregoing, the subject claims are properly limited to statutory subject matter in accordance with 35 U.S.C. § 101. Therefore, it is believed that the subject claims are in condition for allowance, and withdrawal of this rejection is respectfully requested.

II. Rejection of Claims 1-33 Under 35 U.S.C. § 103(a)

Claims 1-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wetherbee (US 5,937,409) (“Wetherbee”) in view of Krishnaprasad, *et al.* (Pub. No. US 2002/0078094) (“Krishnaprasad, *et al.*”). It is requested that this rejection be withdrawn for at least the following reason. Wetherbee and Krishnaprasad, *et al.*, alone or in combination, do not disclose, teach, or suggest each and every element of the subject claims.

To reject claims in an application under § 103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant’s disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The claimed subject matter relates to representing relational schemas in an alternative declarative format. An aspect of the claimed subject matter can include a declarative descriptive component that can represent any relational schema by generating data in an implementation-neutral, declarative format, for example, an eXtensible Markup Language (XML) format utilizing XML syntax. The declarative descriptive component can utilize a tool to extract metadata associated with the relational database, and format the metadata into a file that can represent the precise data and structure of the database. The file can then be utilized to reconstruct the corresponding database when remote and disconnected from the relational database. The file can also contain information on the database type system, as well as the routines (*e.g.*, functions and procedures) that are exposed by the database. Further, a user can modify the data in the file while disconnected from the database and can update the database by remerging the

modified file with the database to reflect the changes made to the file while disconnected from the database. Thus, the claimed subject matter provides the capability of allowing a user to work with a representative structure of a relational database even though remote and disconnected therefrom.

Further, the claimed subject matter can utilize a classification component that can employ a probabilistic-based and/or statistical-based analysis to infer actions and/or automated functions to be automatically performed. For example, one such automated function can be automatically annotating physical information representative of the relational database to generate logical information associated with the relational database.

In particular, independent claim 1, as amended, recites: *a declarative description component that facilitates generation of data, in an implementation-neutral, declarative format based upon an eXtensible Markup Language (XML) syntax, that represents the relational database, generates a file, and stores the data in the file, the file facilitates reconstruction of the relational database when disconnected from the relational database.* Wetherbee and Krishnaprasad, *et al.*, alone or in combination, do not disclose, teach, or suggest this distinctive feature of the claimed subject matter.

Rather, Wetherbee discloses a relational mapper that maps tables of a relational database to expose such tables as class objects in an object oriented system. (See col. 5, lns. 19-21). To map data from a table in a relational database, the relational mapper utilizes the table's metadata to create class type and interface definitions. (See col. 9, ln. 67 – col. 10, ln. 2). The relational mapper generates metadata to describe the newly created class type/interface definitions. (See col. 10, lns. 2-4). Objects that are instantiated from the class type, supported by the default interfaces, and populated with data from a table of the relational database, can be full fledged objects of the object oriented system. (See col. 10, lns. 4-8).

However, unlike the claimed subject matter, Wetherbee is silent regarding generating data that represents a relational database in a different format, storing the data in a file, where the file can be used to *reconstruct the relational database when disconnected from the relational database.* Instead, Wetherbee discloses accessing objects stored in the relational database by obtaining a connection to the relational adapter, where the relational adapter utilizes a mapping to execute a desired transaction.

(See col. 5, lns. 27-34).

Further, Krishnaprasad, *et al.* fails to teach or suggest the distinctive functionality of the claimed subject matter. Rather, Krishnaprasad, *et al.* discloses techniques for viewing and retrieving data from a relational database in XML format. (See p. 1, ¶ [0007]). Krishnaprasad, *et al.* discloses providing Uniform Resource Indicator (URI) references to data to access such data through the World Wide Web, and storing and performing operations on the URI references inside the database. (See p. 1, ¶¶ [0008]-[0010]). Krishnaprasad, *et al.* further discloses techniques for using XML syntax in exchanging data with relational databases, where an access mechanism allows one or more portions of the relational database to be accessed as if it were an XML document. (See p. 1, ¶ [0011]). However, unlike the claimed subject matter, Krishnaprasad, *et al.* fails to teach or suggest storing in a file data that represents the relational database in a different format, and using the file and data stored therein to reconstruct the relational database when disconnected from the relational database.

In contrast, the claimed subject matter can generate data that represents a relational database, including its physical information (*e.g.*, data values in tables in the relational database) and logical information (*e.g.*, information regarding the structure of tables and columns in the relational database), in an implementation-neutral, declarative format based upon an XML syntax. The data can be stored in a file, where the file can be used to ***reconstruct the relational database when disconnected from the relational database***. For example, a user may store, on the user's laptop computer, a file containing data that represents a relational database in an implementation-neutral, declarative format based upon an XML syntax, while connected to the relational database. The user may then disconnect from the relational database and take the laptop computer home, for example, where the file may be used to reconstruct the relational database on the laptop while the user is at home and disconnected from the relational database.

Further, claim 18, as amended, additionally recites: ***a classification component employs at least one of a probabilistic-based analysis or statistical-based analysis, or a combination thereof, to infer that an automated function be automatically performed.*** Wetherbee and Krishnaprasad, *et al.*, alone or in combination, fail to teach or suggest such functionality.

Rather, Wetherbee discloses an automated process performed in software to automatically generate mapping objects. (See col. 18, lns. 57-59). The auto mapper is configured to generate mapping objects and relational objects in accordance with a *predetermined set of rules*. (See col. 18, lns. 64-66). However, Wetherbee fails to disclose utilizing *probability-based or statistical-based analysis* to determine whether an automated function should be automatically performed.

Further, Krishnaprasad, *et al.* is silent regarding the classification component, as claimed. Instead, Krishnaprasad, *et al.* simply teaches that a user's XPath expressions are automatically converted into appropriate query language statements, when the user wishes to retrieve target data from a relational database. (See p. 5, ¶ [0079]).

In contrast, the claimed subject matter can utilize a classification component that employs a *probabilistic-based* and/or *statistical-based analysis to infer* that an automated function be performed. For example, if a relational database is distributed over several locations, and each location has an associated file that represents the distributed database portion at that location, the classification component can make inferences that facilitate determining which location will be selected for regeneration, in what order the locations will be processed, and when the file will be regenerated.

Moreover, independent claim 24 recites: *a declarative description component that receives the relational schema in the form of at least metadata and generates a data file*, in a non-procedural declarative language format based upon an eXtensible Markup Language (XML) syntax, representative of a logical view thereof, *the data file represents the relational schema and facilitates regeneration of the relational database when disconnected from the relational database*. Wetherbee and Krishnaprasad, *et al.*, alone or in combination, do not teach or suggest this distinctive feature of the claimed subject matter.

Rather, Wetherbee discloses a relational mapper that maps tables of the relational database, utilizing the metadata of the tables, to expose these tables as class objects in an object oriented system. (See col. 5, lns. 19-21; col. 9, ln. 67 – col. 10, ln. 2). However, unlike the claimed subject matter, Wetherbee is silent regarding receiving the relational schema of a relational database in the form of metadata and generating a data file that is representative of a logical view of the relational database. Further, Wetherbee fails to

disclose a data file that represents the relational schema, where the file can be used to regenerate the relational database while disconnected from the relational database. Instead, Wetherbee discloses that objects stored in a relational database can be accessed by establishing a connection to the relational database *via* a relational adapter. (See col. 5, lns. 27-34).

Further, Krishnaprasad, *et al.* fails to teach or suggest the distinctive features of the claimed subject matter. Rather, Krishnaprasad, *et al.* discloses accessing data in a relational database through the World Wide Web, and storing and performing operations on URI references inside the database. (See p. 1, ¶¶ [0007]-[0010]). Krishnaprasad, *et al.* further discloses an access mechanism that allows one or more portions of the relational database to be accessed as if it were an XML document. (See p. 1, ¶ [0011]). Thus, Krishnaprasad, *et al.* simply teaches accessing a relational database and performing operations on data in the relational database while connected to the relational database.

In contrast, the claimed subject matter can represent a relational database in a non-procedural declarative language format based upon an XML syntax by receiving its relational schema in the form of metadata, and then generating a data file in such language format that represents a logical view of the relational database. The data file can then be used to ***regenerate the relational database when disconnected from the relational database.***

For example, a user can store, on a laptop computer, a data file that represents a relational database in a non-procedural declarative language format based upon an XML syntax. The user can use the data file to regenerate the relational database, or a portion thereof, such as the relational schema of the relational database, while the laptop is disconnected from the relational database. The user can then modify or change the data in the data file and save such changes while still disconnected from the relational database. Subsequently, the user can access the relational database, and the data file, as updated, can be remerged with the relational database to update the relational database with the changes that were made to the data file while disconnected from the relational database.

In view of at least the foregoing, it is readily apparent that Wetherbee and Krishnaprasad, *et al.*, alone or in combination, fail to disclose, teach, suggest each and every element of the claimed subject matter as recited in independent claims 1 and 24 (and associated dependent claims 2-23 and 25-33). Accordingly, it is believed that the subject claims are in condition for allowance, and the rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063[MSFTP449US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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